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GEOGRAPHICAL RECORD

AMERICAN GEOGRAPHICAL SOCIETY

Meetings of April. The last meetings of the American Geographical Society for the season of 1919-20 were held on April 6 and April 20 at the Engineering Societies' Building, 29 West Thirty-ninth Street. At both meetings President Greenough presided. At the semi-monthly meeting on April 6 the Charles P. Daly Medal of the Society was presented to Dr. George Otis Smith, director of the U. S. Geological Survey. An account of the presentation, and of Dr. Smith's address on "The Geographic Side of Geology" which followed, is given immediately below. On April 20 a monthly meeting was held, at which President Greenough submitted the names of 14 candidates for Fellowship, each of whom had been approved by the Council, and they were confirmed as Fellows of the Society. Thereupon Dr. Edgar J. Banks, late field director of the Babylonian expedition of the University of Chicago, delivered an address entitled "A Thousand Miles Down the Tigris River."

Presentation of the Charles P. Daly Medal to Dr. George Otis Smith. At the semi-monthly meeting of the American Geographical Society on April 6, at the Engineering Societies' Building, 29 West Thirty-ninth Street, the Charles P. Daly Medal of the Society was presented to Dr. George Otis Smith, director of the U. S. Geological Survey. In presenting the medal, President Greenough, who presided at the meeting, spoke as follows:

"The foundation of the medal, which as your President I am about to present, prescribes that it shall be bestowed for contribution to geographical science, and it is most suitably awarded to our guest in the present instance. The fervent political atmosphere which surrounds the executive offices of our Washington Government tends to obscure from the general public the valuable and original scientific work which is constantly performed by various auxiliary departments whose function, roughly speaking, is the acquisition of knowledge pertaining to the conditions and needs of the people of the United States and its adaptation to their use in practical affairs. Amongst the chief of these important agencies is the bureau known for forty years as the U. S. Geological Survey, of which our guest has been for many years the administrative head under the title of Director.

"The official designation of the bureau gives a very inadequate impression of the character and extent of the service rendered by it to the nation in its conception of its duties, which are defined as the 'examination of the geological structure, mineral resources, and products of the national domain.' It is not easy to grasp the magnitude of such an undertaking as applied to an area so great and varied as the United States, covering more than 3,000,000 square miles of territory. It involves the topographical survey and mapping of the field, the ascertainment in detail of quantity and character of minerals and other geological deposits, the ascertainment of water supply and power, the publication and adaptation of its investigations for use by the departments of the government and by the public, besides statistical compilations and research in many directions too numerous to enumerate here. My desire is only to outline the extent and value of the contribution thus made to scientific knowledge.

"But I may especially record the patriotic and vital part taken by the Survey in the prosecution of the war. Its honor roll numbers 477, and the work of its geologists, its topographers, its hydraulic engineers, and its statisticians found opportunity for invaluable aid to the armies at the front in the various spheres indicated by those titles, which services were acknowledged by citation and decorations by the French authorities as well as our own.

"The organization and control of the vast and complex mechanism which I have attempted to indicate devolved primarily upon its Director, who is justly entitled to the first place in the allocation of honor for its achievement. But he would be the readiest to disclaim an exclusive right to credit for results attained by the concerted action of his associates, and I may be permitted to join with his name a public recognition of the work done by Lieutenant-Colonel A. H. Brooks, Lieutenant-Colonel R. B. Marshall, Lieutenant-Colonel Birdseye, Lieutenant-Colonel Glenn Smith, Major J. W. Bagley, Dr. J. B. Umpleby, and Dr. E. S. Bastin in the organization of departments

of work of special importance to the nation, at home and in France, in addition to Major L. L. Lee, Major J. H. Wheat, Captain A. T. Fowler, and Lieutenant Mudd, and many others, including topographers and geologists who rendered distinguished service in the field.

"With the cessation of the war the Survey was amongst the first to readjust itself fully to the discharge of its useful function in time of peace. The enormous accession to the industrial development of our country will make increased demand upon its facilities, and the nation will regard with confidence and pride the conduct of this great bureau under the management of its accomplished Director.

"And now, Sir, on behalf of the Society I ask your acceptance of this medal, which is inscribed as follows:

TO
GEORGE OTIS SMITH
DIRECTOR OF THE UNITED STATES GEOLOGICAL SURVEY
HE HELPED DISCLOSE AND DEVELOP THE
NATURAL RESOURCES OF HIS COUNTRY
ADAPTING THEM TO ITS SERVICE IN PEACE AND WAR
1920

"Upon this record of distinguished effort and successful achievement—the aim of all human endeavor—I beg to offer the congratulations of the Society and its earnest good wishes for your future health and prosperity."

In accepting the medal, Dr. Smith spoke as follows:

"Recognition of service rendered is always acceptable. Especially am I pleased, President Greenough, that by your mention of my associates you have called attention to the fact that the best public service is truly democratic. The work of a great Federal bureau is not only for the many, it is by the many. Representing here the U. S. Geological Survey, I feel that the honor your society has accorded me is the greater because it has been won by united effort.

"The service flag that hangs behind my desk at Washington is a reminder of the 477 men who wore the uniform of the Army or Navy and whom you just now mentioned as constituting the Survey's roll of honor; and we are proud, too, of the score of citations and decorations won overseas by these technically trained officers, including three French crosses for exceptional bravery at the front. But, Sir, there were hundreds of other members of the U. S. Geological Survey who rendered equally needed service in their civilian capacity; indeed there were scores of our best men who preferred overseas service but were commandeered for office or field work as civilians here in the United States. That type of sacrifice also helped win the war.

"It is, Mr. President, in behalf of all these, my associates, that I express my deep appreciation of this honor, and in accepting the Charles P. Daly Medal of the American Geographical Society I assure you that the work for which the award is made is still in progress. I trust, moreover, that our contributions to geographic science may increase in scope and value in the years to follow. And so I thank you, Sir, for this added incentive to future service."

Dr. Smith's Address

There followed an address by Dr. Smith entitled "The Geographic Side of Geology", which is abstracted as follows:

The distinction between the two sciences of geology and geography, which have so much in common as regards scope, method, and personnel, can perhaps be best expressed in terms of their space relations. Geography in this sense is a two-dimensional science; geology adds the third dimension, for it looks beneath the surface of the earth, and its attention to the past and its regard for the future might justify a claim to a fourth dimension—time. It follows that geography becomes the limiting upper plane, along which most men find their only contact with geology, while the fourth, or time, dimension of geology transcends the length and breadth of this plane. This illustration may serve to exhibit the phase of geology which I wish to discuss, its geographic side.

Since the period of Government surveys terminated by the Civil War, the trend of geology has been decidedly toward the practical. The work of the U. S. Geological Survey, with the attention given by its field service to the search for water, ore, coal, and oil, has brought the science into closer touch with the industrial life of the people. The emphasis has been put on resources and use, and the phase of the science which has been most developed under both governmental and educational auspices is economic geology.

The distribution of mineral resources stands out as the geographic phase of applied geology and leads directly to questions of utilization. The value of ores is determined in part by locality and is dependent upon facts of transportation. Thus, in the inventory of mineral resources necessitated by the outbreak of the war, the emphasis was immediately put upon the geographic facts of locality and accessibility, while economy of transportation became the test of value in the examination of ore deposits.

The study of national resources for use in the war program led also to the development of the international view of mineral resources and the industry and commerce founded upon them, and a specialized type of geology, its application in terms of commerce, was demanded. The worker in this field needs to interpret his facts of ore occurrence in terms of use and value to mankind. Ore deposits thus take on competitive relations, which depend in turn upon geographic facts of distribution—not only the location of the ore, but its distance from the supplies of fuel, power, and labor required, as well as the available markets. The scientist must thus relate the facts of his science to national life, and it is this human application of geology which is also its geographic side.

Under the stimulus of the war demand, the work of the Survey in commercial geology took form in the preparation of a world atlas. In order to make the collected data useful to the citizens of the United States, this atlas is now being prepared for publication. The "Atlas of Commercial Geology" will exhibit graphically the distribution of mineral production and mineral reserves, and the necessary world view will be supplied by mineral maps of every continent, while the basal facts of commercial geology and their application to the problems of industry will be presented in a form available for use by the business man. In this connection, also, there has been established in the Survey an "open file" of mineral information for use by geologists and engineers. The first part of the atlas presents the distribution of mineral output in 1913 and is a record of the past, though the figures for that normal year express in a rough way the relative wealth of the leading nations in the essential minerals. The chief importance of the atlas, however, will be found in those parts which show the mineral reserves, though even here our knowledge must be subject to discount in view of the changes in transportation facilities, degree of industrial development, and market requirements, all of which are vital factors in the estimate of the value of mineral reserves.

A comparison of the continents as sources of mineral commodities in 1913 clearly demonstrates the dominance of Europe and America, and, if this comparison is expressed in terms of market value, America's industrial leadership becomes apparent. However, if we would add guarantees of permanence to present prosperity, American industry, in meeting the worldwide competition of the future, must benefit from the lessons learned during the war. There must be a full understanding of America's industrial dependence upon mineral resources, together with a regard for adequacy and permanence of supply, no less than for cost, while the war-time standard of utility as the measure of the value of mineral commodities should be retained. We must realize that resources are expendible, while industry is long-lived, and that commerce on a right basis is the equalizer of supply and demand.

Though America is in the highest degree self-sufficient, two main reasons demand our adoption of an international viewpoint of mineral resources: Our wealth carries its international responsibilities, and our future domestic independence is by no means certain. A striking illustration of this latter fact is afforded by the current statistics of the domestic oil supply, showing an increase in demand far exceeding production, a situation which has enlisted the active interest of American capital in the search for supplies of petroleum abroad. The establishment of foreign trade relations and the domestic industrial expansion resulting from the development of foreign mineral resources serve to emphasize the obvious connection between industry and commerce.

The preponderance of the fuel supply of the world assures to the northern hemisphere, and especially to the countries bordering the North Atlantic Basin, the possession of the centers of industry for centuries to come, an important factor in the political geography of the future. In the solution of the current problems of national policy in the fields of industry and commerce, a knowledge of the facts of commercial geology is necessary. This world outlook is essential, and yet the geographic center of our study must always be the United States, and our consideration of world resources should be related to our own national interest. A wise provision for an adequate supply of mineral raw materials, as well as regard for domestic industrial development, must be the safeguard of the future security of our industrial program. These principles represent the human side of mineral resources and the American side of commercial geology.

Notice Concerning the Current Volume of the "Geographical Review." The present number of the *Geographical Review*, covering the months of April, May, and June, completes Volume IX. The title page, table of contents, and index for this volume will be issued separately. A copy will be sent to each institution exchanging publications with the Society and, on request, to any one who desires to receive one.

The Society's supply of the February, 1920, number of the *Geographical Review* is exhausted. Fellows and others will confer a favor by returning to the Society any copies of this issue they may not care to keep.

EUROPE

A Notable Atlas of Population Distribution in Sweden. For some years Professor Sten De Geer of the University of Stockholm has been experimenting with methods of graphically representing the distribution of population. He has followed the wise plan of writing experimental articles and inviting criticism (Sten De Geer: Befolkningens fördelning på Gottland, *Ymer*, Vol. 28, 1908, pp. 240-253, with map, 1:300,000; Per Stolpe: Till frågan om Gottlands befolkningsfördelning, *ibid.*, Vol. 28, 1908, pp. 413-419; Sten De Geer: Storstäderna vid östersjön, *ibid.*, Vol. 32, 1912, pp. 41-87, with plate of 12 Baltic city plans, 1:100,000; Alfred Söderlund: Förslag till intensitetsbeteckning vid konstruktion av täthetskartor, *ibid.*, Vol. 35, 1915, pp. 267-272; G. A. Larsson: Intensitetsbeteckningar vid kartografisk framställning av befolkningsfördelningen i tätare bebyggda trakter, *ibid.*, Vol. 35, 1915, pp. 351-363).

He has thus perfected a method which is well-nigh ideal, and which has been employed in a beautiful atlas showing the distribution of population in Sweden, according to the census of January 1, 1917 (Karta över befolkningens fördelning i Sverige den 1 januari 1917. Med statsbidrag utgiven av Sten De Geer. 1:500,000. 12 plates in atlas, 22½ x 16 inches. Stockholm, [1919]). A small black dot indicates a hundred people. Villages or small towns up to a population of ten thousand are indicated by the appropriate number of dots placed where the people live in the country or arranged in rectangles to represent towns. For larger places he has evolved a symbol which is admirable because of the conspicuous way in which it stands out. The symbol is merely a small sphere shaded so as to stand out plastically. Besides this is placed a red figure showing the population in hundreds. Several sizes of spheres indicate the relative importance of the cities. The central sphere of Stockholm, surrounded by 12 satellites and by a great number of small black dots, is particularly interesting.

The atlas is accompanied by an explanatory text (Befolkningens fördelning i Sverige: Beskrivning till karta i skalan 1:500,000 av Sten De Geer; 296 pp., Stockholm, 1919). This is in Swedish, but at the end there is an English explanation of the signs used on the maps. The atlas shows not only the distribution of population, but the degree of cultivation, the limits of certain main types of prevalent industries, the lines of communication graded according to their importance, a large number of "lines of physical geography," and certain administrative and other boundaries. Topography, forests, geological structure, and the drainage basins of rivers are all indicated, as well as boundaries of fishing areas. So skillfully is this done that there is no confusion and the maps are easy to read even in the most crowded portions. The scale, 1:500,000, has obviously been chosen with the needs of the more densely populated regions in mind, for in the sparsely populated north it leaves great areas almost blank.

This atlas, taken in conjunction with the atlas illustrating the Swedish agricultural census of 1900 (Sveriges jordbruk vid 1900 talets början: Statistiskt kartverk utarbetadt af Wilhelm Flach, H. J. Dannfelt, Gustav Sundbärg, 262 pp., Göteborg, 1909), places Sweden well in advance of any other country in the skill and accuracy with which it has been mapped. While other countries may excel Sweden in large-scale maps of small areas, no other boasts an atlas which gives so comprehensive and accurate an idea of the life of the people. It is a pity that the United States cannot rival Sweden.

The lead of the Scandinavians in these matters is shown by the fact that a similar atlas on Norway is now in preparation by Mr. Söderlund, one of Professor De Geer's students, in collaboration with Norwegian authorities. The Swedish geographers in Finland are also considering a similar map of that country. The geographers in those countries wonder why Americans do not do a similar piece of work. As Professor De Geer puts it in a personal letter: "When I consider the 'power of initiative' of American geographers and their strong demand for clearness and sense for practical use, I hope that they will accomplish a gigantic map of American population perhaps as soon as we shall have a complete map of Northern Europe or at least of the Fenno-Scandian natural region."

ELLSWORTH HUNTINGTON

ASIA

The Climate and Weather of Mesopotamia. British occupation of Mesopotamia has already been productive of important scientific work. A report on the "Climate and Weather of 'Iraq" (printed and published in Bagdad in 1919), by Lieutenant C. W. B. Normand, gives a very clear and graphic description of the essential meteorological and climatic characteristics of a region the ancient historical interest in which has been renewed by the consequences of the late war. The term Irak applies to the flat alluvial plain lying between Bagdad and the Persian Gulf and is identical in its boundaries with the ancient land of Shinar, the home of the Babylonians. Without its two master rivers, the Tigris and the Euphrates, Irak would be almost a barren desert. When this land was watered by the Babylonian canal system, it was the richest country of Asia and the earliest center of civilization. Without a very perfect system of "river training," marshes are bound to occur along the lower courses of the rivers, which at all times have silted up one channel after another and at intervals have spread disastrous floods over the land. The story of Noah's flood is associated with the earliest history of the region. The probability is "that the Deluge, of which memory is preserved in the legend, was brought down by the rivers and followed a remarkably rainy month in the plains, when copious rain must also have fallen amongst the hills at the headwaters of the rivers."

The climate of Irak is "continental subtropical," i. e. it has large diurnal and annual ranges of temperature, a small vapor content, and scanty rainfall. A moderate estimate gives an annual evaporation of 10 feet, while the rainfall just exceeds half a foot. A small area only is at present productive, through irrigation. The prevailing condition is that of an almost barren wilderness, with scattering camel-thorn and with thin patches of herbage in spring. There are two main seasons. Practically all the rain falls in "winter," from November to April. The rest of the year is marked by oppressive heat and an almost complete absence of rain.

During the winter the main weather control is exercised by a succession of cyclonic depressions, of which there are three or four a month, coming from the eastern Mediterranean or Asia Minor. On the whole the conditions during the six cooler months are pleasant and invigorating. Most of the days are clear or only partly cloudy; the nights are chilly; severe frosts occasionally occur in the early mornings.

In the transition period (March to May) the temperature rises rapidly; the rainfall becomes more and more of the thunderstorm or squall type; flies and other insects are a source of discomfort.

During the hot weather the prevailing winds are northerly, under the control of the great low-pressure system over southern Persia, Baluchistan, and northwestern India. These winds are dry and hot. There is neither rain nor cloud. "To the city inhabitants the hot weather is a period of existence in thick-walled and even underground rooms by day, and on the roof by night." Some relief is found in the *shamal*, a high northwest wind of 20 to 40 miles an hour which blows for periods of several days at a time in June, July, and August. The *shamal*, while often dusty and disagreeable, brings some alleviation from the oppressive heat by lowering the day temperatures and acting as a natural and efficient punkah. In the opinion of most people who have had experience in both climates, Irak is to be preferred to northern India in summer, for in the former region the nights are less unpleasant, there is usually a breeze, and conditions are more favorable for sleeping.

Lieutenant Normand is emphatic in his opinion that climate has not changed in Babylonia. "There exists neither historical nor geological evidence to indicate any appreciable change of climate within historical times beyond the local changes due to a general system of irrigation and the more northerly position of the seaward end of the delta. . . . Throughout history there are evidences of the liability of the rivers to sudden floods, and according to Willcocks, the water supply of the rivers was inadequate in those days, as at present, for the irrigation of the whole of the irrigable land. The general archeological view, indeed, is that the climate has undergone no appreciable change since the days of the Babylonian Empire."

This report deals mainly with Irak, but numerous tabulated observations from the neighboring submontane and mountain districts, and also from the Persian Gulf, are included because of the meteorological interdependence of all these regions.

R. DEC. WARD

POLAR REGIONS

A Recent Drift in the Kara Sea. A remarkable drift voyage has recently taken place in the Kara Sea. On January 22, 1920, the Russian icebreaker *Solovye Budomiro-*

vich (2500 tons burden; equipped with wireless) left Archangel, making for Cheskaya Guba, the large bay east of the White Sea. The aim of this winter journey was to load a complete cargo of reindeer meat on this coast, frequented by Samoyeds. The crew and passengers, including five women, numbered 85. Three days later, off the White Sea, before entering Cheskaya Guba, the ship was beset and then drifted in a generally easterly direction. Always locked in the pack, she was driven through Kara Strait and entered the Kara Sea, where she pursued her drift in a zigzag course. The current first drove the vessel northeast and soon after southeast. Then followed a drift almost due east and subsequently north-northwest. According to wireless messages received from the Russian icebreaker, her successive positions to April 20 were found to be as follows:

March 23	72° 39′ N. lat.	62° 9′ E. long.
April 6	71° 5′ " "	62° 8′ " "
April 14	71° 4′ " "	64° 27′ " "
April 20	72° 8′ " "	63° 43′ " "

As soon as a wireless message from the *Solovye Budomirovich* telling of her dangerous position—there was then no more coal on board and food was scant—was received by the Archangel station, the Russian Soviet government called by wireless on the Norwegian government to rescue the ship in distress, insisting on the humanitarian purpose of such an enterprise. The Norwegian government agreed, and a rescue expedition was organized. No strong ship being available in Norway, the British government loaned a powerful icebreaker, the *Sviatogor*, and Captain Otto Sverdrup, the celebrated Polar explorer, volunteered as leader of the expedition. Dr. Breitfuss, the well-known Russian oceanographer, was a member of the staff. The expedition was provided with two airplanes for detecting the position of the distressed ship. The *Sviatogor* left Bergen on May 12 for the Kara Sea. This spring there was unusually little ice in the Arctic north of Europe. Navigation on the west coast of Spitsbergen was open early in May, and according to the Christiania newspaper *Aftenposten* a steamer reached Vardö in the first days of May from Archangel without encountering a single bit of ice in the White Sea. There is no previous record of the west coast of Spitsbergen and of the White Sea being open so early.

A wireless message from the *Sviatogor* received in Christiania on June 21 announced the finding of the *Solovye Budomirovich* by the *Sviatogor* and the rescue of her full complement, all of whom were taken aboard the British vessel. Details of the later part of the drift will be awaited with interest.

CHARLES RABOT

HUMAN GEOGRAPHY

Atmospheric Conditions Which Affect Health. In the *Quarterly Journal of the Royal Meteorological Society* for July, 1919 (pp. 189-207), Professor Leonard Hill, of the University of London and the Medical Research Committee, contributes an unusually interesting and valuable article on "Atmospheric Conditions Which Affect Health." He begins by raising the question whether the ordinary meteorological records really measure the conditions which chiefly influence mankind. Under ordinary circumstances barometric pressure, "which is measured with such refinements of accuracy," has practically no effect upon human health or feelings, as Hill demonstrates by experiments in deep-sea diving and in closed chambers. The proportion of carbon dioxide and of oxygen in the air also has no importance in producing discomfort or ill health except under circumstances far more extraordinary than those of the most poorly ventilated mines or offices. The old ideas as to the exhalations from human beings and the supposed toxic poisons thus produced "have been swept away by the overwhelming evidence of physiological research. . . . The victims of the Black Hole of Calcutta died from heat stroke, not from poisonous vitiation of the air by the exhalations of the crowd." Ionization and the production of ozone may perhaps have some effect in making some air "alive" and other air "dead," but this is by no means proved. "It is the cooling and evaporative power of the atmosphere and the radiant heat of the sun, or other source of radiant energy, which have a colossal effect on our comfort and well-being, and it is these factors which require to be measured by the student of hygiene."

As a means of measuring these factors Dr. Hill has devised the "katathermometer," an instrument which measures the speed with which a thermometer drops 5°F. upon exposure to the air after being heated to 100°. This instrument, when dry, sums up the combined cooling power of radiation and convection; when covered with a wet

film of muslin, it measures the effect of these two conditions, plus the cooling effect due to evaporation. It is unquestionably a most useful instrument and ought to be used widely for regular daily observations.

Some of the conclusions which Dr. Hill derives from his katathermometric studies are highly suggestive and of great practical importance: "The expectation of life of the purely industrial population among those who survive over 15 years is 49 to 50 years; of the purely agricultural population, 67 years. Were the agricultural population better housed and better fed their expectation would be, I believe, more like 87 years. The sheltered indoor life of those who work in warm rooms and live in stuffy tenements does not protect from but increases the incidence of consumption and other diseases." . . . "The common people seek to save, and, in truth, destroy life, by avoiding cold and shunning exposure to bad weather and by confining their children within doors and limiting their exercise—this they often do for the sake of keeping clean and untorn the garments, while weakening the bodies, of their children." . . . "*The ordinary indoor conditions of this country* [*England*] *approximate to outdoor conditions in such a humid tropical climate as Ceylon, admittedly an enervating climate to Europeans.*" [The italics are Hill's.] . . . . "Two hours a day of open-air exercise fully compensates for sedentary work in warm enclosures, keeps a man perfectly fit, and secures an enjoyment of life and good temper which no indoor recreation can give." . . . "I attach great importance to the radiant energy which pours into us when out of doors, and I say the open fire or gas-fire giving radiant energy is the right method of warming in our misty climate." . . . . "The ideal spring day out of doors gives us sunshine, a warm ground, and cool moving air. These are the conditions we want to imitate in our rooms." Presumably the gas-fire here suggested means one where the fumes go up the chimney and thus cause circulation of the air.

If such are the conditions in England, which the reviewer is growingly convinced to be the most favored of all countries so far as the effect of climate upon human health is concerned, what shall we say of the United States? Every argument for outdoor life which applies in England applies with redoubled force here—where the danger of respiratory and nervous diseases is distinctly greater.

In spite of its general excellence Dr. Hill's work needs amplification and amendment in certain respects. For example, so far as one can gather from the present article, he relies too much on mathematical deductions and not enough upon facts of observation, or rather, although he has made many observations and experiments with the katathermometer, he seems to correlate these with the conditions of health theoretically rather than by actual statistics of energy, disease, and death. Perhaps this seeming weakness will disappear in the fuller publication which is soon promised.

Again, his statements as to the climate of the United States are not quite convincing. The net cooling power of the atmosphere, so he says, is considerably greater in England than in Washington, "whence it follows that the British require an ampler diet than the Americans of the United States—a question of fundamental importance in food rationing times, which the American physiological experts were at first inclined to settle against us." Dr. Hill seems to overlook the fact that Washington is by no means typical of this country and has on the whole a rather poor climate. The majority of the people of the United States live where the climate is cooler, more variable, and more stimulating. In this connection it is noticeable that, although Dr. Hill by implication lays much emphasis upon the value of variability in promoting health, he does not specifically recognize this highly important factor.

The chief respect in which Dr. Hill's work needs amplification arises from the fact that for each climatic condition there is an optimum or most favorable level, so to speak, above or below which the effect is less and less favorable. In England more harm is done by too much humidity than by too little. Having carried on his investigations in such a climate, Dr. Hill gives the erroneous impression that dryness is everywhere desirable. Yet the evidence of millions of deaths proves the contrary. In the hospitals of Boston, for example, after operations performed in unusually dry weather the number of deaths rises about 20 per cent above the average and about 40 per cent above the number when the operations are performed under conditions of favorable humidity, such as prevail perhaps one-fifth of the time.

In spite of these criticisms Dr. Hill's paper is of uncommon value. In an old and well-established subject it is easy to satisfy the critic, but in a subject, like this, which breaks new ground there are bound to be many inconsistencies and many points which demand further study. Such a paper is especially valuable as a stimulus to others to plow in the same field.

Ellsworth Huntington

The Origins of Civilization. Recent numbers of the *Scientific Monthly* have contained several contributions of geographical interest. One of these, a series of articles by Professor J. H. Breasted of the University of Chicago, discusses the origins of civilization (Vol. 9, 1919, 289-316, 416-432, 561-577, Vol. 10, 1920, 86-105, 182-209, 249-268). He begins by a discussion of the geographical conditions of the ancient world, especially Egypt at the dawn of civilization. Then from about 5000 B. C. he follows the course of civilization down to the days of the Greeks. His presentation is unusual and correspondingly interesting because it departs from the ordinary historic method of dealing only with rulers. He tells about the entire life of the people and about their relation to their environment. One of the most interesting features is a series of diagrams showing the evolution of different types of architecture, such as the pyramids and the cathedrals of Europe, from their simplest forms to their complex culmination. Another diagram worthy of careful study shows the comparatively steady progress of civilization in Egypt and Babylon and the irregular progress in Europe.

Professor Breasted ranks as a leader among historians who appreciate the geographic background. In a recent address (The Place of the Near Orient in the Career of Man, and the Task of the American Orientalist, *Journ. Amer. Oriental Soc.*, Vol. 39, 1919, Part 3, pp. 159-184; noticed in the *Review*, Vol. 8, 1919, pp. 285-286) he has presented an unusually strong and persuasive plea for co-operative investigation along various lines, including history, archeology, geography, and anthropology. Geographers would do well to read this address, for it gives a new appreciation of the relation of their science to other lines of effort.

ELLSWORTH HUNTINGTON

EDUCATIONAL GEOGRAPHY

The Extension of Meteorological Instruction. The emphasis which was laid upon the practical importance of a knowledge of meteorology during the war will inevitably lead to a general increase of popular interest in this science and to its more extended teaching. The war demonstrated the need of meteorological training in numerous ways, notably in forecasting, in aviation, and in artillery firing. The American Expeditionary Forces had their own meteorological observers and forecasters. The men who enlisted in the air service, either in the Army or the Navy, were given courses of lectures in meteorology as a part of their "ground school" training. And the artillery officers were instructed in the most essential facts regarding the temperature and the direction and velocity of the wind at various altitudes above the earth's surface. The U. S. Weather Bureau gave preliminary instruction, which was completed in France, to some two hundred engineers and other scientists. The Signal Corps of the Army established a School of Meteorology in Texas to train several hundred meteorologists for service overseas. A course in meteorology was included in the work of the Students' Army Training Corps. In these various ways the subject of meteorology was brought conspicuously before large numbers of men during the war, and the stimulus thus applied should surely lead to a much wider inclusion of the subject in the course of study offered at our higher institutions of learning.

Soon after hostilities ceased the *Monthly Weather Review* (Vol. 46, 1918, pp. 554-567) published a valuable series of papers on meteorology as a subject for study, which should prove very useful to all present and prospective teachers and students of the subject. The Weather Bureau deserves credit for including this symposium in its most popular publication just at that time. The articles are all of immediately practical use and should stimulate and aid in the more general introduction and the better teaching of meteorology in American colleges and universities. In the first paper, "How Meteorological Instruction May Be Furthered," Professor R. DeC. Ward takes the ground that two things are necessary. First, united effort on the part of those who are already in a position to give instruction in meteorology to send out students who will, in their turn, carry on that instruction. And, second, as meteorology has at present a recognized place in very few of our colleges and universities, teachers of physics, of geology, of geography, and of other sciences, who have any interest in meteorology, should make it their business to develop meteorological courses as a part of their own work. A discussion of "Collegiate Instruction in Meteorology," by Dr. Charles F. Brooks, contains many excellent practical suggestions as to the content of an elementary course in meteorology, of college grade. Three outlines of courses of lectures in meteorology are given. There are many suggestions as to the taking of daily observations and the graphic presentation, in a simple and vivid form, of the results of such observations. Brief comment is also made on the textbooks which are useful in this work.

Professor Oliver L. Fassig gives an account of the work which was done in the Signal Corps School of Meteorology at College Station, Texas, of which school he was chief instructor and director. At the time of the signing of the armistice, about three hundred men who had been trained at Weather Bureau stations and at the School of Meteorology in Texas had been sent abroad. About two hundred men were assigned to a score or more of the flying fields, artillery and ordnance camps, balloon schools and radio detachments in the United States. Twenty-five men were transferred to the Navy, for duty in connection with the development of the hydrophone, an instrument designed to detect the presence of submarines.

The series of articles here referred to has been reprinted in pamphlet form, and should come into the hands of all present and prospective teachers of meteorology.

In a later number of the *Monthly Weather Review* (Vol. 47, 1919, pp. 169-170) Dr. Charles F. Brooks summarizes the results recently obtained regarding the present extent of collegiate instruction in meteorology and climatology in the United States. The data were secured in reply to a questionnaire sent by Commissioner P. P. Claxton, of the Bureau of Education, to the presidents of colleges and universities in this country. Dr. Brooks says: "It is to be regretted that there are only three universities in the country where research in meteorology is specifically encouraged, and that even the semblance of a thorough course in elementary meteorology is given at only one in ten of the institutions of higher learning in the country."

GEOGRAPHICAL NEWS

Obituary

Major Robert Hollister Chapman of Washington, D. C., died of pneumonia in New York City on January 11, 1920, at the age of fifty-one. He was widely known as a topographical engineer through his connection with the U. S. Geological Survey, which he joined as a youth of fourteen and continuously served for over thirty years. He did map work for the Survey in the Adirondacks of New York, in the Rockies near Butte, Montana, in the High Sierras of California and in the Death Valley region of California and Nevada. The latter work was noteworthy by reason of the difficult desert conditions overcome. In the Taft administration he had charge of Glacier National Park, which he also mapped.

In 1909 and 1910, at the request of the Canadian Geological Survey, he was detailed in Ottawa for the purpose of introducing American methods of surveying and mapping. The triangulation of Vancouver Island was initiated under his direction. In 1915 he explored the Big Bend of the Columbia River in British Columbia and in 1919 the region southwesterly from Yellowhead pass.

During the war, as a Major of Engineers (Reserve Corps), he was assistant to General Theodore Bingham in connection with the defenses of New York City and in the production of airplane maps.

He was a member of the American Geographical Society and of the Royal Geographical Society and at the time of his death was Secretary of the American Alpine Club. He was an enthusiastic mountaineer and a skillful cartographer.

Howard Palmer

Note

Mr. Wallace E. Whitehouse, of the University College of Wales, Aberystwyth, calls attention to several inaccuracies in the note on "A Relief Model of Wales" in the February *Review* (pp. 141-142). Contrary to the implication of the note the whole model had been completed at the time of the publication of the handbook in 1915. Only 10 of the 66 blocks of the model were described, as is pointed out on p. 22 of the handbook, in order to keep the handbook of a small size and low price. Mr. Whitehouse was not responsible for the whole of the modeling work. Professor H. J. Fleure directed it in the early stages, and later Mr. Whitehouse took charge and was ultimately responsible for the modeling of 34 blocks and the revision of the other 32. The note speaks of the "apparently artificially softened modulation of the blocks." This is more apparent than real. The plates in the handbook are halftone views of highly glazed cement blocks, and all who have had experience of photographing such objects appreciate the difficulty of getting an accurate photograph for reproduction purposes.